A SHORT NOTES ABOUT TECHNICAL LITERATURE (TL) & TRAINING AGGREGATES (TA)

- Technical Literature (TL) and Training Aggregates (TA) are the most common words in RFQ/RFE/SOW if you are an OEM or service provider to Defence or Defence Labs.
- These TAs and TLs are mandatory deliverables along with the system/subsystem

Technical Literature (TL)

- Technical literature means as the name suggests all the literature i.e. all the manuals related to the system and IETM.
- TL = All manuals + IETM
- The Illustrated Part List (IPL) / Illustrated Spare Part List (ISPL) and User Handbook (UHB) will be made in JSG 0308: 2017 format.
- The **remaining documents will be as per JSS 0251-01: 2015**. The end user will review these PDFs, and the final documents will be generated.
- These PDF's are called Soft Copies of Technical Literature and they will be handed over in DVD.
- Depending on the agreement, OEM has to deliver in hard copy / Printout. Paper used for printing shall be 80 GSM.

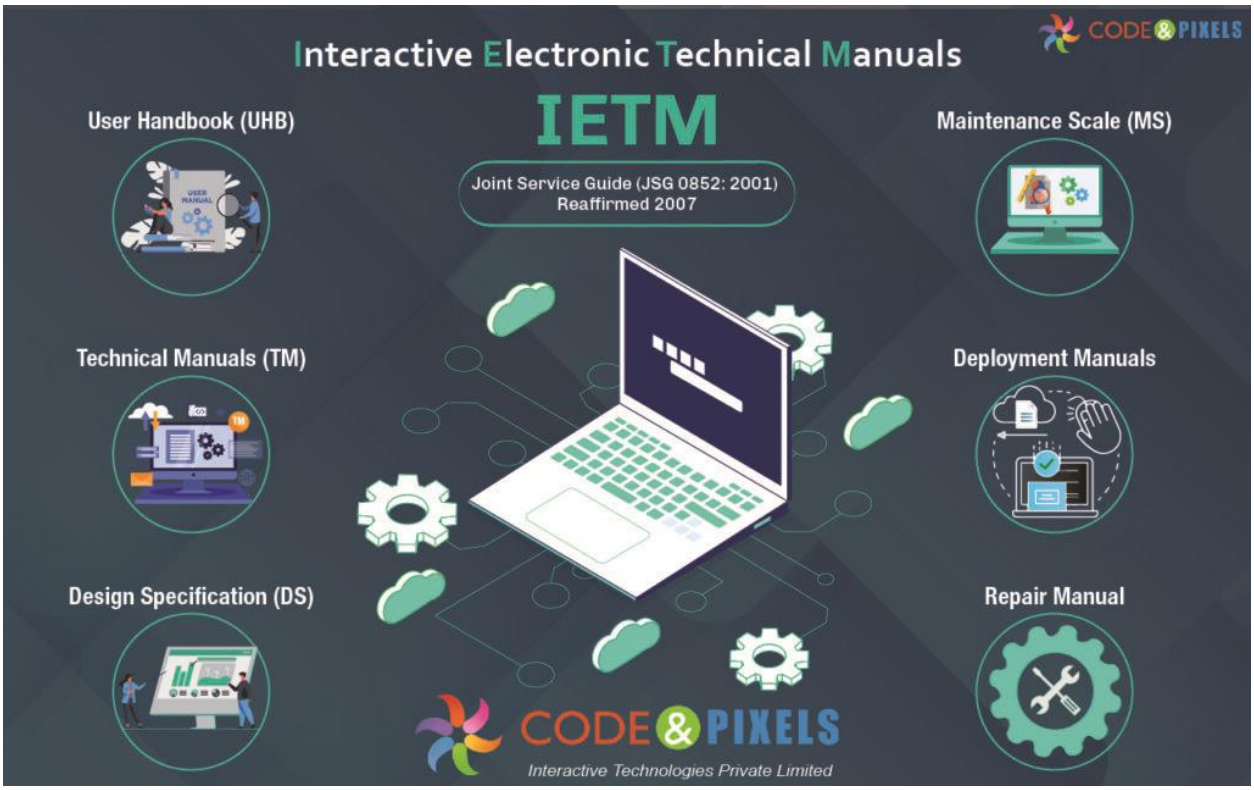
List of MANUALS:

1. User Handbook / Operator Manual
2. BOM
3. Technical Manual Part – I :- (Technical Description, Specification, and functioning of various systems)

4. Technical Manual Part – II :- (Inspection / Maintenance Task repair procedures, the material used, fault diagnostics, and use of Special Maintenance Tools (SMTs) / Special Test Equipment's (STEs)
5. Technical Manual Part – III :- (Procedure for assembly/disassembly, repair up to component level, safety precaution)
6. Technical Manual Part – IV :- (Part list with drawing reference and list of SMTs/STEs test bench)
7. An illustrative list of spares (ISPL) Manual
8. Manufacturer Recommended List of Spares (MRLS)

Interactive Electronic Technical Manual (IETM)

- IETMs are a portable, electronic "library" which contains thousands of pages of documentation and images and allows end users to trace technical documentation in a more efficient manner, and the digital nature provides a more agile and accurate method of updating technical documentation.
- IETM or **Interactive Electronic Technical Manual**, as the name indicates, is a Manual which is interactive and in the form of electronic/digital.
- It means when the Electronic User manuals Interact and respond with the user, that is you, it will become an Interactive Electronic Technical manual.
- Any manual's purpose is to give information related to the equipment to the end user for quick reference.
- All the technicality is written in detail so that when an issue arises, the user can refer to the manual, as every time OEM or technical person or subject matter expert might not be available on the spot to resolve the issue.
- If the manual has 10 pages users can refer easily. But any system used by the defence will have multiple manuals and thousands of page counts and many times a user has to cross-refer between manuals, intra-manual and inter-manual to resolve the issue.
- Referring to 10- 15 hard-copy or even soft-copy books simultaneously will be difficult and time-consuming. Using IETM software, users can solve in a single click and seconds.
- IETM is a web-based application like our bank software or any other web application. The graphic user interface will be provided to use IETM through which users can interact and get the desired data.



Training Aggregates (TA)

- As the name suggests, Defence people need to give training to their officers. The trainer uses various training aids and disseminates the training.
- Below are various training aids or aggregates required to complete training.
- The following comes under Training Aggregates.
- Computer-Based Training
    - Operator
    - Maintainer
- Roll Down Charts
- Sun Board / Blow-Up Charts
- Training Brochure
- Slides
- Video Film

COMPUTER-BASED TRAINING:

- Let's assume that as an OEM you have delivered a Drone. Along with the drone, you will also give all the related manuals i.e. User handbook, Technical Manual, Maintenance manual etc in soft copy and also a printed version.
- First time some trainers from OEM will give the end users training during delivery.
- Due course of time, if end-user has any doubts or wants to give training to new members, every time they cannot call the OEMs training team to explain.
- Instead of real-time training, an audio-visual presentation having 3d views, 2d animations images and videos will be developed on topics like introduction, technical specifications, Installation, deploying, operation, maintenance, and troubleshooting.
- These are played in Computers hence they are called Computer-based Tutors or Training Aids.
- As technology advanced, these CBTs can also be viewed in portable digital Devices i.e. Mobiles, Tabs etc.
- In general, users are divided into 2 segments – Operator and Maintainer.
- CBT will have 2 parts. All the contents required for the operator will be designed as **Operator CBT** and all the contents required for the maintainer are designed as **Maintainer CBT**.
- In general, the CBT is developed in the English language as voice-over and also on-screen text. In a few cases end user may ask for the Hindi version also.
- These CBTs will have features like Play pause next previous menu mute etc like any standard Video player.
- These CBTs are password-protected. These CBTs will be delivered in DVDs.
- Based on the complexity of the equipment, CBT duration will be between 3 hours to 30 hours Lenth.

Inputs Required to Prepare CBT:

- Raw script Raw content i.e. PPTs, VIDEOS, IMAGES, Step files, 3d files, Photography and videography of the equipment.

How Do you Calculate Run Time?

1. Duration is measured in terms of run time. I.e. if you see some movie run time may be 90 minutes or 120 minutes.

2. It means if you sit and watch without any pause/ break what is the length of the movie? Similarly, if you play continuously the length of the E-Learning is measured in time. One course may be 12 minutes and the other course may be 45 minutes. It depends on the depth that you want to cover and the number of topics that you want to cover.
3. For example, assume that you want to course on point machines.
4. Following may be break up
    - Introduction – **4 min**
    - Technical Specifications – **3 min**
    - Working Principle (Operation)– **3 min**
    - Sub Systems (Description of Each part) – **30 mins**
    - Deployment /Installation – **15 min**
    - Troubleshooting – **5 min**
    - Maintenance – **6 mins**
    - Fault diagnosis – **3 mins**
5. So, if you want everything to be covered then the run time of the point machine would be = 69 minutes.
6. Maybe for a few pieces of equipment, you may not want an in-depth or detailed explanation. So run time depends on your learning requirement.
7. Generally, we estimate the CBT times based on the number of words, i.e. **Number of Words / 118 = Estimated Duration of CBT.** (It means voice over artist speaks 118 words per minute as a Voice overlay of CBT)
8. **Assuming that your final script has 1100 words, then the** CBT estimated time can be calculated as **11000 / 118 = 93 Min** is the estimated Duration after going through the content.
9. The more depth you want to cover the topic, duration of CBT increases. The minimum duration of any CBT should be 1 hour and a maximum of up to 100 hours depending on the Complexity of the system the number of LRUs and the depth of content you want to provide to the end user, i.e. operations, maintenance, troubleshooting, replacing LRUs and other related content.

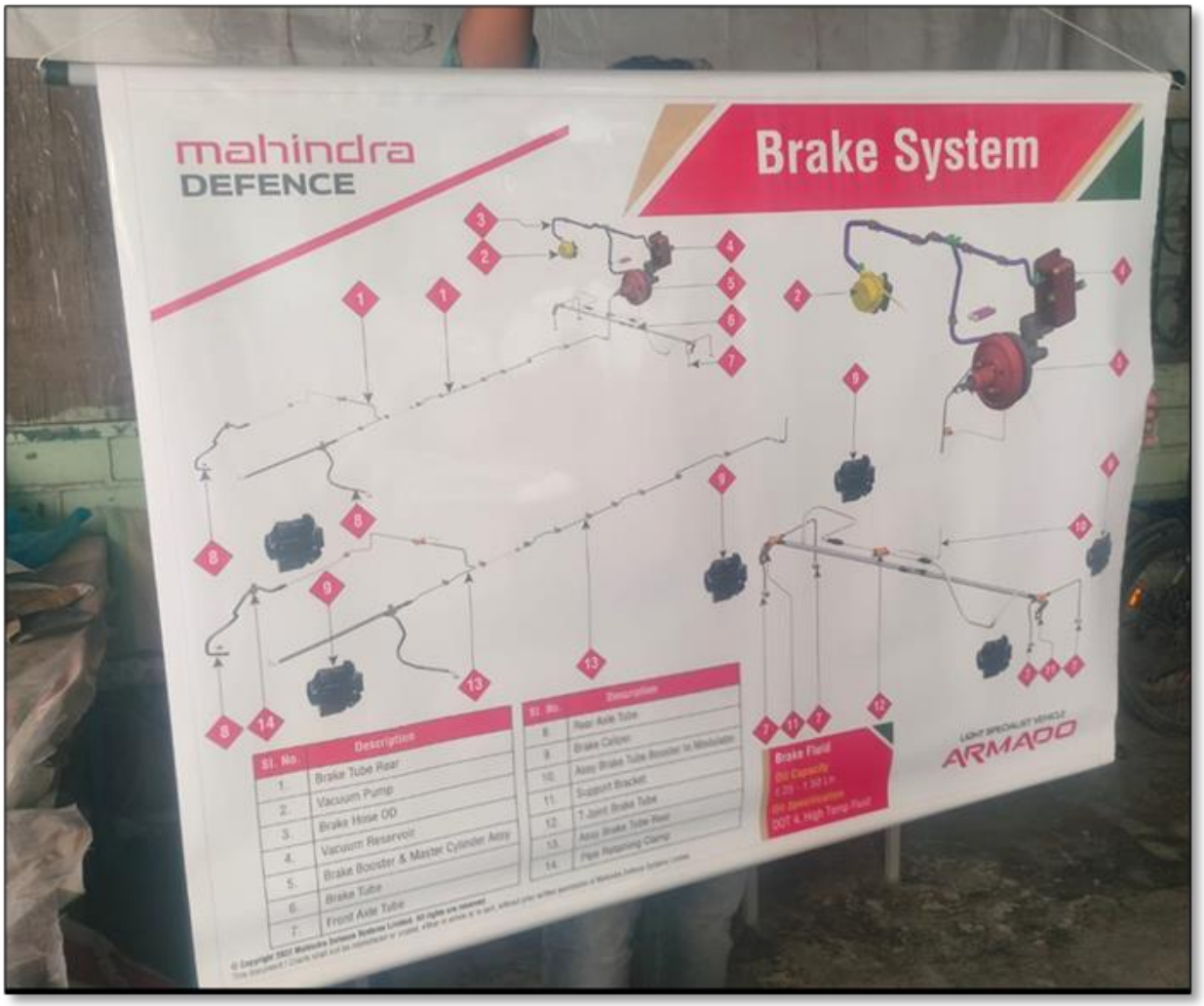
ROLL-DOWN CHARTS AND BLOW-UP CHARTS / SUN BOARDS

- These are wall-fitted printouts size of 3 feet X 4 feet.

- The roll-down chart is foldable and the Sun board and blowup chart are fixed on the wall.

Roll-Down Charts Specifications:

- Digital Eco Solvent Printing on Vinyl with glossy lamination along with 3” Top and Bottom Extra Vinyl for looping with 2” Transparent Cello tape, insert PVC pipes and caps on both sides with nylon thread for hanging.



Blowup chart – Sun Board Specifications:

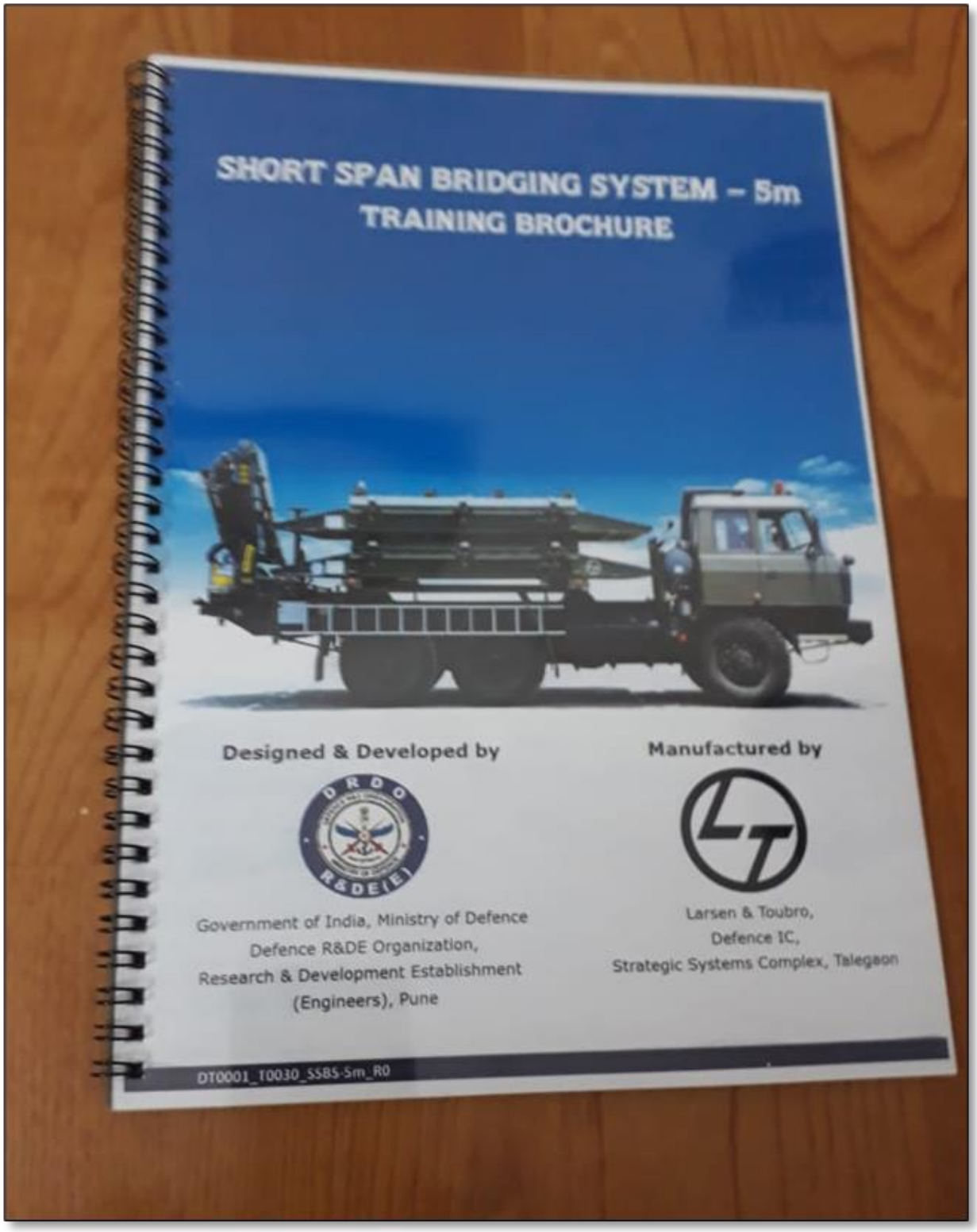
- 3 ft X 4 ft colour printed acrylic 5 MM sun board with beading vertical & horizontal corner clips and centre hook for handling display in labs.

SHORT SPAN BRIDGING SYSTEM (SSBS) - 5m
Features of SSBS-5m
Parking Position of Vehicle
Parallel to Gap Axis & Right side of Gap
Parallel to Gap Axis & Left side of Gap
Perpendicular to Gap Axis
Modes of Launching/De-Launching
Remote using Wireless
Remote using Cable
Manual Mode
Auxiliary Power Supply
Pressure Line Colour coded with Post Office Red Colour
Tank Line Colour coded with Sky Blue Colour
Pressure Line
Tank Line

TRAINING BROCHURE

- Training brochure is a 100-page colour-printed spiral binding document which covers all the important aspects of the systems.

i.e. introduction, Specifications, Operations procedures, Troubleshooting, maintenance, deploying, unpacking and other related contents with Images.


SHORT SPAN BRIDGING SYSTEM – 5m
TRAINING BROCHURE
Designed & Developed by
DRDO
R&DE(E)
Government of India, Ministry of Defence
Defence R&DE Organization,
Research & Development Establishment
(Engineers), Pune
Manufactured by
Larsen & Toubro,
Defence IC,
Strategic Systems Complex, Talegaon
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SLIDES

- When someone is giving a presentation, they use PowerPoint slides.
- Similarly, a PowerPoint presentation is made in such a way that the trainer can project on the screen and give a lecture or presentation using the PowerPoint slides.
- These slides consist of Text, Images, drawings, tables etc all the multimedia elements required for teaching the concept.
- These are two delivered on DVD.
    - Powerpoint source file .PPT
    - PDF file .PDF

VIDEO FILM

- This is very similar to CBT.
- But this will have more actual videos captured i.e. operations procedure, maintenance, troubleshooting, assembly and disassembly etc.
- A good quality, HD quality video is delivered on DVD. The Deliverable format is MP4 in full HD format.

IETM vs CBT

Interactive Electronic Technical Manual VS Computer-Based Tutor/Training

- There is no comparison between IETM and CBT. Both are different and both purposes are different. Both are needed but it is replicable with each other.
- **IETM means, technical documentation which deals with your documents** and **CBT means computer-based Training which comprises Multimedia**, i.e. Animations, videos, and voice-over.
- Both are 2 different deliverables. **IETM is all the documents are arranged in a simple manner** so that within a few clicks user can reach a specific point where it would have been difficult to do in traditional hard copies or even in PDFs too.
- Thousands of pages can not be easily referred hence the concept of IETM has come in to picture a decade back. When some issue occurs, for instant information, IETM is referred by the user.
- **CBT is a detailed explanation of some process or assembly or disassembly process or operations procedure** which has voice overlay so that the user gets a clear idea about equipment.

- Not complete information is developed in CBT. Only important topics are developed in CBT, which is very essential in training, i.e. operating procedure, installation process etc, which needs real-time practice or real-time video to see. In those cases, CBTs are used.
- IETM is a separate purpose and CBT has a separate purpose.
- CBT and IETM, Video Films go hand in hand for training. They are separate deliverables and developed for separate purposes.